Amendments to the Claims

A complete listing of all claims that replaces all prior listings of claims in this application is set forth below.

Please amend claims 21, 23-26, 31-34, and 36 as set forth below.

Claims 1-16 (canceled).

17. (Withdrawn) A dip coating apparatus for immersion coating an article with a coating layer of a solution, the apparatus comprising:

a dip tank configured to receive the article therein, said dip tank including an upper opening sized to permit the article to pass therethrough, a solution outlet, and a solution inlet situated below the solution outlet;

a solution pumping system for pumping solution at a pump rate into the inlet of the dip tank to generate a vertical flow of solution within the dip tank between the inlet and the outlet, the pumping system comprising a motor driven pump fluidly coupled to a source of solution and the inlet of the dip tank;

a controller for adjusting the pump rate whereby adjustments to the pump rate vary the vertical flow rate of the solution;

a viscometer for measuring the viscosity of the solution, the viscometer providing an input to the controller indicative of the measured viscosity of the solution, and

wherein the controller adjusts the pump rate in response to the measured viscosity of the solution.

18. (Withdrawn) The apparatus of claim 17 wherein the controller controls the angular velocity of the motor.

19. (Withdrawn) The device of claim 18 and further comprising a plurality of such dip tanks, a manifold fluidly coupled to the pump and the inlets of the plurality of manifolds, a reservoir for capturing solution flowing out of the outlets of the plurality of dip tanks and being fluidly coupled to the pump.

20. (Withdrawn) The device of claim 19 wherein the viscometer is located in the pumping system disposed between the motor driven pump and the inlet of the dip tank.

21. (Currently amended) A method of manufacturing a photoreceptor comprising:

pumping a charge transfer layer ("CTL") solution into a tube via a CTL solution inlet in the tube, the CTL solution having an initial viscosity, the tube having an upper opening positioned above the CTL solution inlet in the tube and sized to receive a substrate therethrough, the upper opening being configured to act as a solution outlet for the tube, the CTL solution being pumped through the tube from the CTL solution inlet to the CTL solution outlet at an initial pump speed selected to generate a predetermined vertical flow rate of the CTL solution in the tube;

inserting the substrate through the upper opening and at least partially submerging the substrate in the CTL solution in the tube;

withdrawing the substrate from the tube at a predetermined pull rate as the CTL solution is pumped through the tube at the predetermined vertical flow rate, the predetermined pull rate and the predetermined vertical flow rate being selected in accordance with the initial viscosity of the CTL solution to provide a differential rate that enables a CTL coating to be deposited on the substrate at a target thickness;

measuring a viscosity of the CTL solution as the substrate is being withdrawn from the tube; and

adjusting the initial pump speed to generate an adjusted vertical flow rate of the CTL solution in the tube in response to deviations of the measured viscosity from the initial viscosity as the substrate is being withdrawn from the tube, the adjusted vertical flow rate being selected in accordance with a magnitude of the deviations and the predetermined pull rate to provide an adjusted differential rate to maintain the target thickness of the CTL coating on the substrate as the substrate is withdrawn from the tube.

22. (Previously presented) The method of claim 21, the pumping of the CTL solution further comprising:

pumping the CTL solution through the tube using a motor driven pump having a variable speed controller, the variable speed controller being configured to control an angular velocity of the motor driven pump to generate the predetermined vertical flow rate.

23. (Currently amended) The method of claim [[21]] 22, the adjustment of the initial pump speed further comprising:

adjusting the angular velocity of the motor driven pump via the variable speed controller to generate the adjusted vertical flow rate.

24. (Currently amended) The method of claim 21, further comprising:

adjusting the adjusted pump speed to modify the adjusted vertical flow rate of the CTL solution back to the predetermined vertical flow rate in response to the measured viscosity corresponding to the initial viscosity.

25. (Currently amended) The method of claim 24, the adjustment of the initial pump speed to generate an adjusted vertical flow rate in response to deviations of the measured viscosity from the initial viscosity further comprising:

increasing the initial pump speed to an upper adjusted pump speed in response to the measured viscosity being greater than the initial viscosity; and

decreasing the initial pump speed to a lower adjusted pump speed in response to the measured viscosity being less than the initial viscosity.

26. (Currently amended) The method of claim 25, the increasing and decreasing of the initial pump speed further comprising:

increasing the initial pump speed to an upper adjusted pump speed in response to the measured viscosity being greater than the initial viscosity by a first threshold amount; and

decreasing the initial pump speed to a lower adjusted pump speed in response to the measured viscosity being less than the initial viscosity by a second threshold amount.

27. (Previously presented) The method of claim 26, the first and the second threshold amounts being between approximately 5 and approximately 30 centipoise.

28. (Previously presented) The method of claim 26, the upper adjusted pump speed being approximately 3% greater than the initial pump speed, and the lower adjusted pump speed being approximately 3% less than the initial pump speed.

29. (Previously presented) The method of claim 21, the substrate comprising a photoreceptor drum.

30. (Previously presented) A method of controlling the thickness of a coating layer on an article, the method including:

dipping an article in a dip tank, the dip tank being filled with a coating solution having an initial viscosity;

pumping the coating solution through the tank from a lower portion to an upper portion of the tank such that the coating solution has an initial vertical flow rate;

withdrawing the article from the dip tank at a pull rate to form a coating layer on the article, said pull rate and said initial vertical flow rate exhibiting a differential rate, a thickness of the coating layer corresponding to the differential rate and a viscosity of the coating solution, the initial vertical flow rate and the pull rate being selected in accordance with the initial viscosity to generate a coating layer on the article having a target thickness;

detecting an actual viscosity of the coating solution as the article is withdrawn from the dip tank; and

adjusting the vertical flow rate of the coating solution from the initial vertical flow rate to an adjusted vertical flow rate in response to the detected viscosity deviating from the initial viscosity, the adjusted vertical flow rate causing an adjusted differential rate, the adjusted differential rate being selected in accordance with the pull rate and the detected deviating viscosity to maintain the target thickness of the coating layer.

31. (Currently amended) The method of claim 30, the pumping of the coating solution further comprising:

pumping the coating solution through the dip tank [[tube]] using a motor driven pump having a variable speed controller, the variable speed controller being configured to control an angular velocity of the motor driven pump to generate the initial vertical flow rate and the adjusted vertical flow rate.

32. (Currently amended) The method of claim [[30]] 31, further comprising:

adjusting the angular velocity of the pump [[speed]] to modify the adjusted vertical flow rate of the coating solution back to the initial vertical flow rate in response to the detected viscosity corresponding to the initial viscosity.

33. (Currently amended) The method of claim 32, the adjustment of the angular velocity of the pump [[speed]] to generate an adjusted vertical flow rate further comprising:

increasing the angular velocity of the pump [[speed]] to an upper adjusted pump angular velocity [[speed]] in response to the detected viscosity being greater than the initial viscosity; and

decreasing the angular velocity of the pump [[speed]] to a lower adjusted pump angular velocity [[speed]] in response to the detected viscosity being less than the initial viscosity.

34. (Currently amended) The method of claim 33, the increasing and decreasing of the pump angular velocity [[speed]] further comprising:

increasing the angular velocity of the pump [[speed]] to an upper adjusted pump angular velocity [[speed]] in response to the detected viscosity being greater than the initial viscosity by a first threshold amount; and

decreasing the angular velocity of the pump [[speed]] to a lower adjusted pump angular velocity [[speed]] in response to the detected viscosity being less than the initial viscosity by a second threshold amount.

35. (Previously presented) The method of claim 34, the first and the second threshold amounts being between approximately 5 and approximately 30 centipoise.

36. (Previously presented) The method of claim 35, the upper adjusted pump angular velocity [[speed]] being approximately 3% greater than the initial pump angular velocity [[speed]], and the lower adjusted pump angular velocity [[speed]] being approximately 3% less than the initial pump angular velocity [[speed]].